

Occupational Injuries and Diseases in Alberta

**Construction
1996 to 2000**

**Alberta Construction Safety
Association Industries**





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1. Introduction

The Mission of Alberta Human Resources and Employment

Alberta Human Resources and Employment's mission is to foster safe and healthy workplaces. Workplace Health and Safety works within the continuum of services provided by Alberta Human Resources and Employment. Its focus is on the development and implementation of strategies and initiatives aimed at meeting the department's goal that Alberta will have a fair, safe and healthy work environment. To this end, Alberta Human Resources and Employment recognizes that monitoring workplace health and safety will help to ensure that primary concerns are actively managed and that resources are directed where needed.

This report provides an estimation of the risk of injury or disease (lost-time claim rate) in addition to the descriptive information about the incidents and injured workers in the Alberta Construction Safety Association (ACSA) industries for the years 1996 to 2000. This report also looks at the number of employers that received a Certificate of Recognition (COR) in 2000 as a result of an external audit. Cost of injuries and revenue in terms of premiums are also presented. Finally, a summary of occupational fatalities accepted by the Workers' Compensation Board (WCB) and descriptions of those traumatic workplace fatalities investigated by Occupational Health and Safety are provided. The information presented in this report is based on incidents of injuries or diseases that occurred during the year and were accepted as lost-time incidents by the WCB as of March 31 of the following year.

The purpose of this report is to provide government, employers, workers, and health and safety officers in the construction industry, information about the industry's key health and safety issues.

Description of ACSA Industries

The ACSA industries can be subdivided into the following Partners in Injury Reduction (PIR) groups of industries: Drywall and Residential Construction; Glaziers; Industrial Construction; Masonry; Mechanical and Electrical Insulation; Roadbuilders; Roofers; and Lime Cement and Concrete Products Manufacturing. For a complete listing of the industry codes for each group, see Appendix A.

Summary of ACSA Lost-Time Claims

From 1996 to 2000,

- There were 28,863 lost-time claims from workers in Alberta Construction Safety Association (ACSA) group of industries. Of these 26% involved workers in Drywall and Residential Construction followed by Industrial Construction (24%). Overall, both the number of lost-time claims and estimated person years worked increased over the five-year period, resulting in an average injury rate of 4.8 per 100 person-years worked.
- Over the five-year period, the most common accident types among ACSA workers were overexertion in maneuvering objects (21% of the total lost time claims) and being struck by objects (17%).
- Sprains, strains and tears were the most common nature of injury, accounting for a total of 41% of all the lost-time claims.
- The trunk, including the back was the most common body part injured.
- Almost 31% of the injured workers were 25 to 34 years of age. More than four out 10 injured workers had been working for less than six months before the injury or disease.

In 2000,

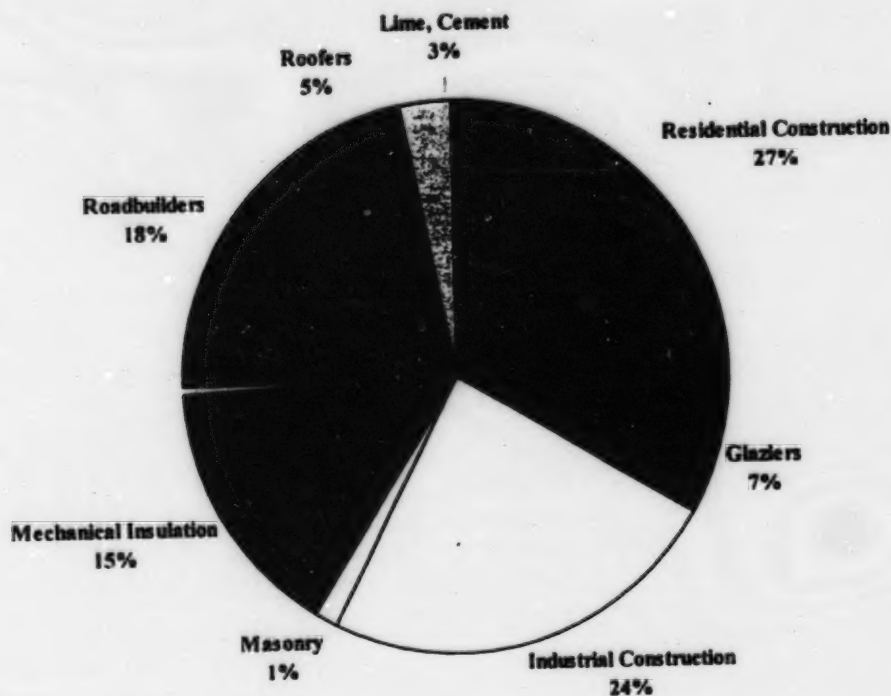
- There were approximately 138,527 workers covered by the WCB in ACSA industries, representing about 12% of workers covered by the WCB in Alberta.
- The WCB accepted 6,591 lost-time claims from workers in ACSA, representing about 17% of all time lost claim accepted by the WCB from all workers in the province.
- The injury and disease rate for workers in ACSA was 4.8 per 100 person-years worked. This was about 41% higher than the rate for all workers in Alberta
- The WCB accepted 38 occupational fatalities for compensation from workers in ACSA, representing 32% of a fatalities accepted from workers in Alberta.

2. Lost-Time Claim (LTC) & Duration Rates

All ACSA Industries

Year	# of Accounts	Cost	Person Years	Days Lost	Duration Rate	LTCs	LTC Rate
1996	22,815	\$20,307,064	88,898	174,615	196	4,359	4.9
1997	25,558	\$27,634,443	113,885	232,608	204	5,767	5.1
1998	27,279	\$32,876,664	128,798	249,803	194	6,112	4.8
1999	28,609	\$22,684,826	133,349	257,164	193	6,034	4.5
2000	29,900	\$40,584,462	138,527	280,696	203	6,591	4.8

LTC by PIR Groups of Industries 1996-2000



2.1 Lost-Time Claim Rates by PIR Groups of Industries

Drywall/Residential Construction

Year	# of Accounts	Cost	Person Years	Days Lost	Duration Rate	LTCs	LTC Rate
1996	9,061	\$4,702,062	20,993	51,180	244	1,194	5.7
1997	9,728	\$7,648,210	26,140	73,430	281	1,544	5.9
1998	10,236	\$8,560,311	31,631	77,120	244	1,681	5.3
1999	10,823	\$6,670,337	30,597	80,024	262	1,649	5.4
2000	11,154	\$10,070,495	32,153	79,331	247	1,730	5.4

Glaziers

Year	# of Accounts	Cost	Person Years	Days Lost	Duration Rate	LTCs	LTC Rate
1996	461	\$588,497	4,451	6,270	141	312	7.0
1997	476	\$868,050	5,565	8,154	147	442	7.9
1998	483	\$1,737,271	5,565	10,277	185	416	7.5
1999	498	\$675,441	6,278	8,629	137	367	5.8
2000	518	\$1,330,482	6,026	10,766	179	360	6.0

Industrial Construction

Year	# of Accounts	Cost	Person Years	Days Lost	Duration Rate	LTCs	LTC Rate
1996	4,259	\$3,988,474	22,752	35,278	155	980	4.3
1997	5,106	\$5,355,025	27,928	43,492	156	1,264	4.5
1998	5,568	\$7,242,220	30,963	53,953	174	1,426	4.6
1999	5,729	\$4,692,451	36,111	56,872	157	1,488	4.1
2000	6,165	\$9,767,924	38,875	72,654	187	1,763	4.5

Masonry

Year	# of Accounts	Cost	Person Years	Days Lost	Duration Rate	LTCs	LTC Rate
1996	208	\$174,651	559	1,809	324	48	8.6
1997	203	\$252,591	650	2,573	396	60	9.2
1998	198	\$311,205	761	2,622	345	68	8.9
1999	212	\$315,885	868	3,782	436	88	10.1
2000	212	\$400,911	843	3,303	392	86	10.2

Mechanical/Electrical Insulation

Year	# of Accounts	Cost	Person Years	Days Lost	Duration Rate	LTCs	LTC Rate
1996	3,069	\$2,322,988	14,934	19,929	133	666	4.5
1997	3,503	\$3,008,181	20,937	22,666	108	807	3.9
1998	3,651	\$3,674,928	24,133	24,003	99	917	3.8
1999	3,857	\$2,904,048	25,087	30,222	120	1,011	4.0
2000	4,077	\$4,546,647	26,238	30,868	118	1,039	4.0

Roadbuilders

Year	# of Accounts	Cost	Person Years	Days Lost	Duration Rate	LTCs	LTC Rate
1996	4,392	\$6,742,312	21,113	42,801	203	853	4.0
1997	4,996	\$7,403,891	27,166	54,993	202	1,173	4.3
1998	5,476	\$8,069,202	29,210	57,613	197	1,114	3.8
1999	5,687	\$4,710,934	27,683	51,063	184	939	3.4
2000	5,944	\$10,637,314	28,011	57,724	206	1,122	4.0

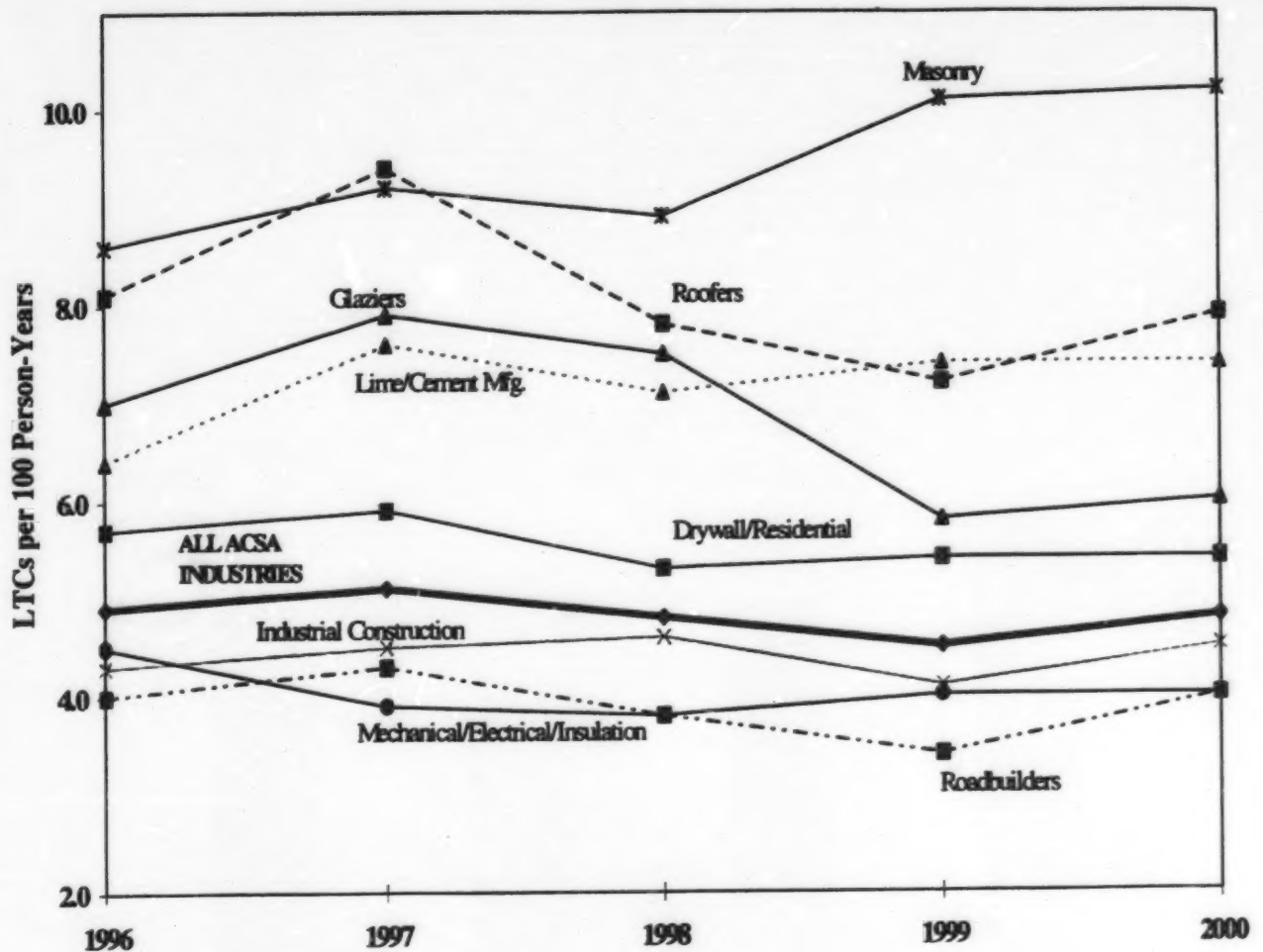
Roofers

Year	# of Accounts	Cost	Person Years	Days Lost	Duration Rate	LTCs	LTC Rate
1996	782	\$1,311,721	2,513	12,422	494	204	8.1
1997	870	\$2,220,877	3,342	18,015	539	313	9.4
1998	906	\$2,071,007	3,602	14,074	391	281	7.8
1999	959	\$1,731,133	3,889	17,314	445	281	7.2
2000	958	\$2,504,039	3,492	15,614	447	277	7.9

Lime Cement/Concrete Manufacturing

Year	# of Accounts	Cost	Person Years	Days Lost	Duration Rate	LTCs	LTC Rate
1996	583	\$433,559	1,582	4,459	282	102	6.4
1997	676	\$776,981	2,156	8,545	396	164	7.6
1998	761	\$1,210,521	2,934	10,141	346	209	7.1
1999	843	\$984,598	2,837	9,258	326	211	7.4
2000	872	\$1,131,606	2,888	9,326	323	214	7.4

LTC Rates for All ACSA Industries and PIR
Groups of Industries
Alberta, 1996-2000

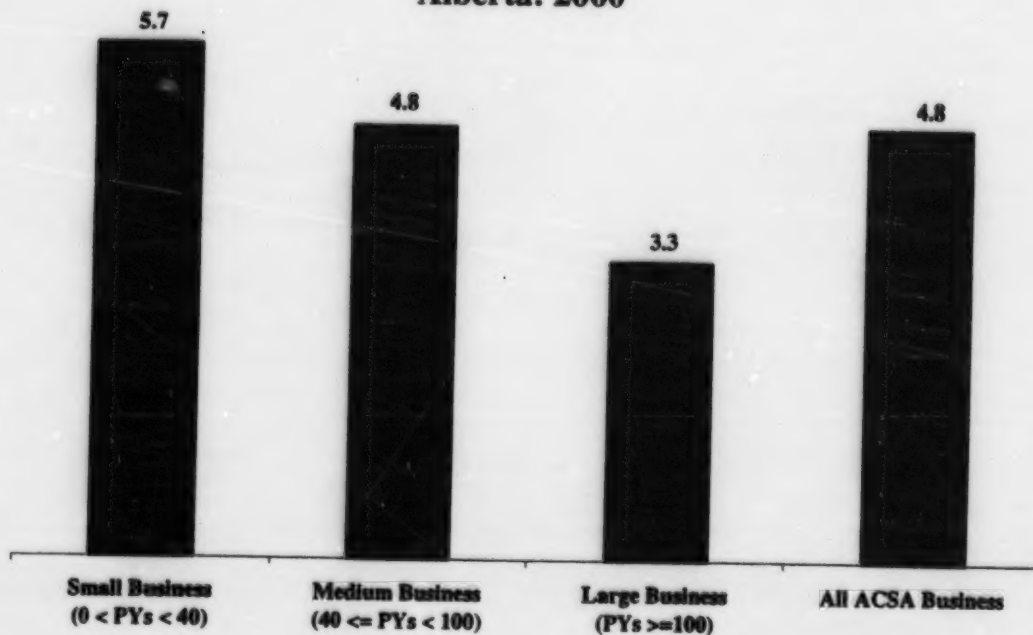


Lost-Time Claim Rates	1996	1997	1998	1999	2000
Drywall and Residential Construction	5.7	5.9	5.3	5.4	5.4
Glaziers	7.0	7.9	7.5	5.8	6.0
Industrial Construction	4.3	4.5	4.6	4.1	4.5
Masonry	8.6	9.2	8.9	10.1	10.2
Mechanical and Electrical Insulation	4.5	3.9	3.8	4.0	4.0
Roadbuilders	4.0	4.3	3.8	3.4	4.0
Roofers	8.1	9.4	7.8	7.2	7.9
Lime and Cement Manufacturing	6.4	7.6	7.1	7.4	7.4

2.2 Lost-Time Claim Rate by Size¹ of Employer: 2000

Size of Employer	# of Accounts	LTCs	Person - Years	LTC Rate
A: 0 <= PYs < 1	17,750	390	7,352	5.3
B: 1 <= PY < 5	8,136	1,068	18,262	5.8
C: 5 <= PYs < 10	1,692	694	12,042	5.8
D: 10 <= PYs < 20	1,148	933	16,002	5.8
E: 20 <= PYs < 40	635	952	17,564	5.4
F: 40 <= PYs < 100	360	1,058	21,849	4.8
G: PYs >= 100	161	1,478	45,455	3.3
H: Invalid	18	18	N/A	N/A
Total	29,900	6,591	138,527	4.8

**LTC Rate by Size of Employer
Alberta: 2000**



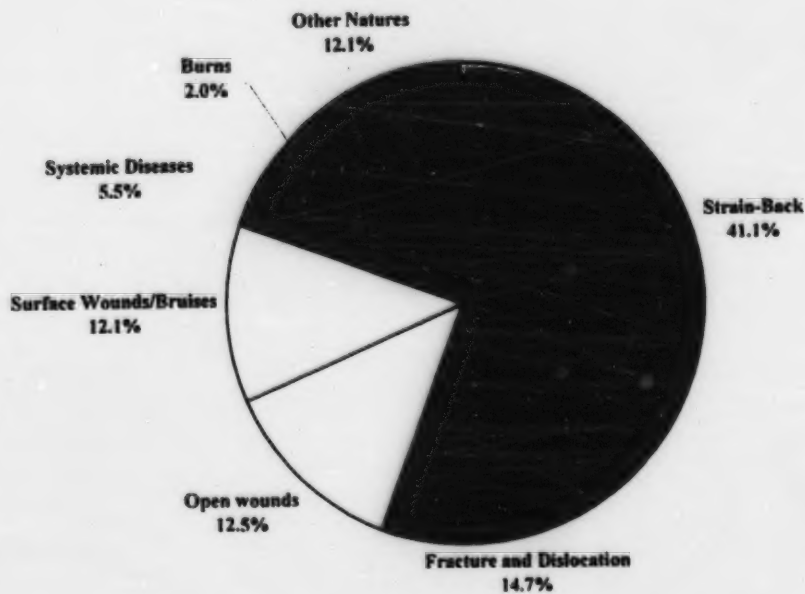
¹ Size is measured in terms of estimated person-years (PYs)
Performance and Applied Research September, 2001

3. Analysis of the Lost-Time Claims

3.1 Nature of Injury

LOST-TIME CLAIMS ALBERTA: 1996 TO 2000	OCCURRENCE YEAR					Total	
	1996	1997	1998	1999	2000	Number	Percent
FRACTURE, DISLOCATION	638	980	932	821	886	4,257	14.7
NATURE - UNS	216	144	139	218	234	951	3.3
OTHER TRAUMATIC INJURIES/DISEASE	337	381	461	549	617	2,345	8.1
SPRAIN, STRAIN, TEARS	1,629	2,279	2,581	2,563	2,817	11,869	41.1
OPEN WOUNDS	553	786	788	708	762	3,597	12.5
SURFACE WOUNDS, BRUISES	626	711	711	711	731	3,490	12.1
SYSTEMIC DISEASES, DISORDERS	240	295	325	315	403	1,578	5.5
BURNS	84	136	132	110	123	585	2.0
OTHER DISEASE, CONDITIONS, DISORDERS	3	4	1	5	7	20	0.1
MULTIPLE DISEASE, DISORDERS	30	37	25	17	5	114	0.4
TUMORS, CANCER	.	5	6	2	3	16	0.1
SYMPTOMS, SIGN/ILL-DEFINED CONDITIONS	3	9	10	13	2	37	0.1
INFECTIOUS, PARASITIC DISEASE	.	.	1	2	1	4	0.0
Total	4,359	5,767	6,112	6,034	6,591	28,863	100.0

**LTC by Type of Injuries in
All ACSA Industries
Alberta: 1996-2000**



3.2 Part of Body Injured

LOST-TIME CLAIMS ALBERTA: 1996 TO 2000	OCCURRENCE YEAR					Total	
	1996	1997	1998	1999	2000	Number	Percent
NECK	123	153	154	137	172	739	2.1
BODY SYSTEMS	17	17	32	26	21	113	0.3
OTHER TRUNK	521	685	742	793	859	3,600	12.2
FINGER(S)	479	613	618	567	582	2,859	9.8
LEG(S)	449	613	672	616	664	3,014	10.3
OTHER UPPER EXTREMITIES	256	346	368	369	422	1,761	6.0
HAND(S)	381	554	582	612	651	2,780	9.6
BACK	1,076	1,392	1,580	1,557	1,644	7,249	25.1
ANKLE(S) & FOOT(FEET)-NOT TOES	489	702	651	623	693	3,158	10.9
MULTIPLE BODY PARTS	166	160	193	285	342	1,146	4.0
EYE(S)-OPTIC NERVE, VISION	177	217	235	184	215	1,028	3.6
OTHER HEAD	142	212	206	182	221	963	3.3
OTHER LOWER EXTREMITIES	71	92	72	71	93	399	1.4
UNKNOWN	11	10	7	11	10	49	0.2
OTHER BODY PARTS	1	1	.	1	2	5	0.0
Total	4,359	5,767	6,112	6,034	6,591	28,863	100.0

3.3 Source of Injury

LOST-TIME CLAIMS ALBERTA: 1996 TO 2000	OCCURRENCE YEAR					Total	
	1996	1997	1998	1999	2000	Number	Percent
CHEMICAL/CHEMICAL PRODUCTS	43	72	62	41	50	268	0.9
HANDTOOLS-POWERED	89	125	131	94	129	568	2.0
PERSONS-INJURED WORKER	456	652	692	775	852	3,427	11.9
CONTAINERS	192	264	292	320	371	1,439	5.0
HANDTOOLS-UNPOWERED	194	231	258	279	274	1,236	4.3
PARTS AND MATERIALS	763	1,161	1,230	1,148	1,230	5,532	19.2
STRUCTURES/SURFACES	734	1,146	1,133	1,078	1,289	5,380	18.6
MACHINERY	240	333	341	312	354	1,580	5.5
OTHER SOURCES	183	217	222	206	282	1,110	3.8
VEHICLES	235	259	309	301	331	1,435	5.0
MINERALS-METALS/NONMETALS	40	66	65	57	84	312	1.1
PLANTS & ANIMALS	7	9	14	6	6	42	0.1
PERSONS-NOT THE INJURED WORKER	9	10	14	5	20	58	0.2
OTHER TOOLS/EQUIPMENT	83	147	142	142	147	661	2.3
FURNITURE AND FIXTURES	68	95	83	86	103	435	1.5
UNKNOWN	1023	980	1124	47	1184	5380	18.6
Total	4,359	5,767	6,112	6,034	6,591	28,863	100.0

3.4 Duration of Disability

LOST-TIME CLAIMS ALBERTA: 1996 TO 2000	OCCURRENCE YEAR					Total	
	1996	1997	1998	1999	2000	Number	Percent
A: 01 - 05 Days	1,265	1,663	1,795	1,681	1,887	8,291	28.7
B: 06 - 10 Days	543	812	802	788	861	3,806	13.2
C: 11 - 15 Days	366	448	470	463	478	2,225	7.7
D: 16 - 20 Days	243	331	329	317	301	1,521	5.3
E: 21 - 30 Days	363	458	462	444	440	2,167	7.5
F: 31 - 40 Days	228	324	332	350	372	1,606	5.6
G: 41 - 50 Days	213	264	258	252	285	1,272	4.4
H: 51 Days OR More	1,049	1,342	1,522	1,573	1,690	7,176	24.9
I: Unspecified	89	125	142	166	277	799	2.8
Total	4,359	5,767	6,112	6,034	6,591	28,863	100.0

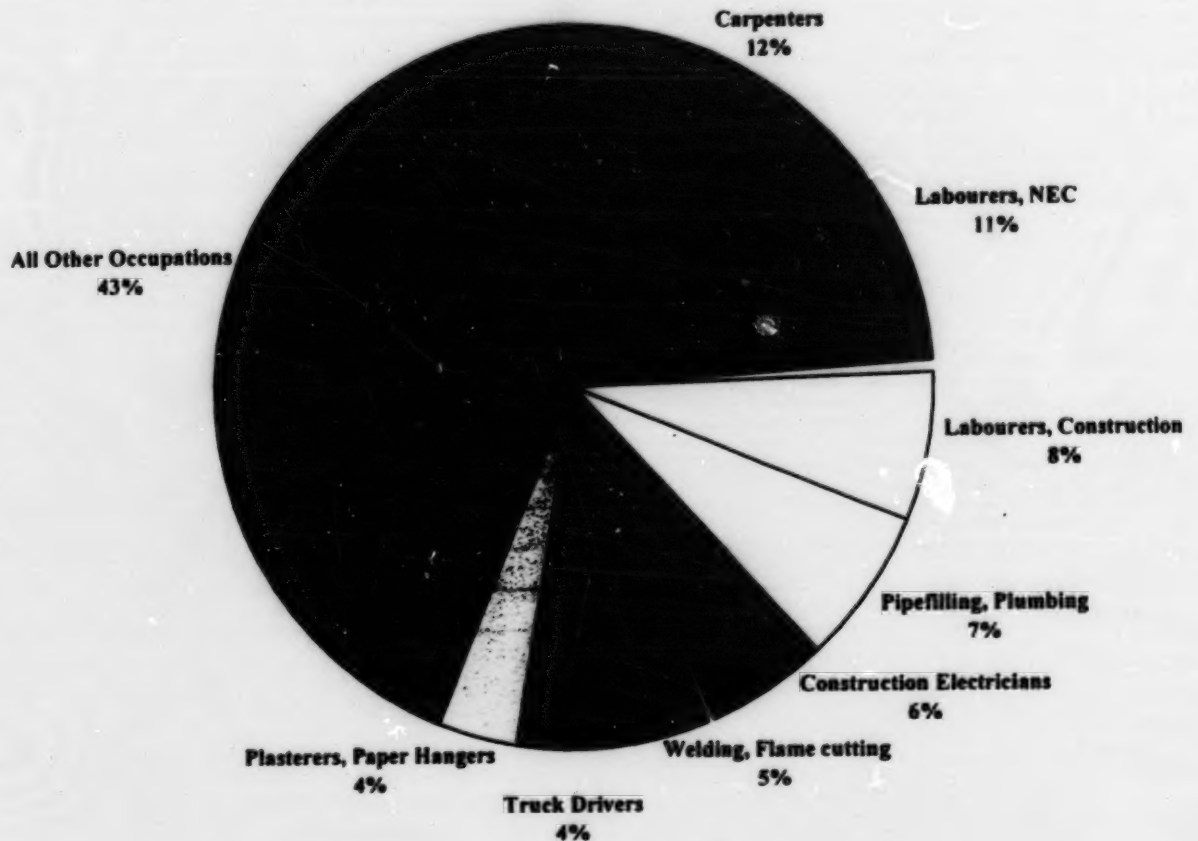
3.5 Type of Event/Exposure

LOST-TIME CLAIMS ALBERTA: 1996 TO 2000	OCCURRENCE YEAR					Total	
	1996	1997	1998	1999	2000	Number	Percent
Fall to Lower Level	562	838	789	697	741	3,627	12.6
Exposure to Harmful Substance	160	205	233	182	196	976	3.4
Struck by objects	698	1,041	1,033	964	1,028	4,764	16.5
Bodily Reaction	393	537	603	620	644	2,797	9.7
Overexertion	838	1,129	1,285	1,295	1,445	5,992	20.8
Caught in Objects	216	312	290	288	320	1,426	4.9
Struck against objects	213	318	352	362	380	1,625	5.6
Rubbed or Abraded	120	148	135	90	137	630	2.2
Transportation Accidents	171	184	230	227	266	1,078	3.7
Fall on Same Level	264	316	371	374	478	1,803	6.2
Other Falls	85	158	126	151	126	646	2.2
Repetitive Motions	60	82	71	122	169	504	1.7
Other Bodily Reaction/Exertion	17	37	28	50	59	191	0.7
Other Assaults/Violent Acts	4	6	1	.	3	14	0.0
Other Contact with Object/Equipment	9	25	38	12	19	103	0.4
Assaults/Violent acts by Persons	6	6	9	3	14	38	0.1
Fires and Explosions	9	11	18	18	13	69	0.2
Other Events/Exposure	.	.	1	.	.	1	0.0
Unknown	534	414	499	579	553	2,579	8.9
Total	4,359	5,767	6,112	6,034	6,591	28,863	100.0

4. Characteristics of the Injured Worker

4.1 Occupation of Injured Worker

LTC by Occupation in All ACSA Industries
Alberta: 1996-2000



4.2 Age of injured Worker

LOST-TIME CLAIMS ALBERTA: 1996 TO 2000	OCCURRENCE YEAR					Total	
	1996	1997	1998	1999	2000	Number	Percent
A: 15 - 19 Years	226	394	371	318	366	1,675	5.8
B: 20 - 24 Years	658	952	1,024	983	1,029	4,646	16.1
C: 25 - 34 Years	1,490	1,816	1,892	1,882	1,830	8,910	30.9
D: 35 - 44 Years	1,153	1,497	1,687	1,617	1,897	7,851	27.2
E: 45 - 54 Years	574	730	804	797	990	3,895	13.5
F: 55 - 64 Years	238	338	300	383	419	1,678	5.8
G: 65+ Years	16	30	26	45	48	165	0.6
H: Unspecified	4	10	8	9	12	43	0.1
Total	4,359	5,767	6,112	6,034	6,591	28,863	100.0

4.3 Length of Time Employed

LOST-TIME CLAIMS ALBERTA: 1996 TO 2000	OCCURRENCE YEAR					Total	
	1996	1997	1998	1999	2000	Number	Percent
A: LESS THAN 1 MONTH	655	976	999	1,006	1,004	4,640	16.1
B: 1 MONTH TO < 6 MONTHS	979	1,523	1,639	1,497	1,587	7,225	25.0
C: 6 MONTHS TO < 1 YEAR	312	541	538	537	560	2,488	8.6
D: 1 YEAR OR MORE	961	1,089	1,233	1,417	1,478	6,178	21.4
E: TIME UNSPECIFIED	1,452	1,638	1,703	1,577	1,962	8,332	28.9
Total	4,359	5,767	6,112	6,034	6,591	28,863	100.0

4.4 Gender of Injured Worker

LOST-TIME CLAIMS ALBERTA: 1996 TO 2000	OCCURRENCE YEAR					Total	
	1996	1997	1998	1999	2000	Number	Percent
MALES	4,110	5,404	5,784	5,669	6,149	27,116	93.9
FEMALES	119	216	228	245	318	1,126	3.9
UNSPECIFIED	130	147	100	120	124	621	2.2
Total	4,359	5,767	6,112	6,034	6,591	28,863	100.0

5. Cost of Claims and Premiums

5.1 All ACSA Industries

	OCCURRENCE YEAR				
	1996	1997	1998	1999	2000
TRANSACTION YEAR					
1996	\$14,371,379.8				
1997	\$12,353,583.0	\$19,703,621.6			
1998	\$7,301,456.3	\$18,863,871.9	\$23,811,431.6		
1999	\$6,940,905.7	\$12,869,109.4	\$21,463,711.4	\$23,237,538.6	
2000	\$4,138,920.8	\$9,907,554.8	\$12,650,053.1	\$24,735,020.9	\$28,611,563.8
Total Cost	\$45,106,245.6	\$61,344,157.6	\$57,925,196.0	\$47,972,559.5	\$28,611,563.8
Total Premiums	\$84,199,344.2	\$95,201,294.9	\$91,199,993.2	\$73,660,473.7	\$89,784,952.0

The above claim cost and premiums are for the five year period 1996 through 2000. The data is as of May 4, 2001.

The cost of claim amount reflects only paid cost on lost-time claims that have occurred in the five-year period. The claim costs are tracked by occurrence year and the year that the costs were transacted.

The premiums are the total of all employer's premiums paid in each year.

5.2 Cost of Claims by PIR Group of Industries

Drywall/Residential Construction

	OCCURRENCE YEAR				
	1996	1997	1998	1999	2000
TRANSACTION YEAR					
1996	\$3,453,711.0				
1997	\$3,247,964.6	\$5,601,815.2			
1998	\$1,725,973.0	\$5,960,349.8	\$6,202,123.3		
1999	\$1,937,201.0	\$3,971,618.2	\$7,053,004.4	\$6,769,308.0	
2000	\$1,264,889.6	\$3,602,373.1	\$4,511,550.0	\$6,917,439.6	\$7,130,845.8
Total Cost	\$11,629,739.0	\$19,136,156.2	\$17,766,677.7	\$13,686,747.5	\$7,130,845.8
Total Premiums	\$21,287,238.8	\$24,700,866.3	\$26,493,574.3	\$21,612,984.8	\$24,056,002.4

Glaziers

	OCCURRENCE YEAR				
	1996	1997	1998	1999	2000
TRANSACTION YEAR					
1996	\$451,332.9				
1997	\$369,966.6	\$667,668.7			
1998	\$240,444.1	\$518,615.5	\$1,308,691.9		
1999	\$407,123.9	\$317,445.3	\$1,625,439.6	\$783,097.2	
2000	\$70,266.9	\$386,741.6	\$546,050.4	\$712,193.6	\$1,001,173.3
Total Cost	\$1,539,134.5	\$1,890,471.2	\$3,480,181.9	\$1,495,290.8	\$1,001,173.3
Total Premiums	\$3,366,282.85	\$3,182,630.33	\$3,392,120.85	\$2,736,209.01	\$3,206,872.40

Industrial Construction

	OCCURRENCE YEAR				
	1996	1997	1998	1999	2000
TRANSACTION YEAR					
1996	\$2,938,854.8				
1997	\$2,552,776.7	\$3,454,510.7			
1998	\$1,721,622.2	\$3,264,705.3	\$5,329,388.8		
1999	\$887,581.1	\$2,351,594.4	\$4,808,247.8	\$5,392,711.0	
2000	\$471,057.3	\$1,867,325.6	\$2,632,154.5	\$6,662,076.3	\$7,248,102.6
Total Cost	\$8,571,892.1	\$10,938,136.0	\$12,769,791.2	\$12,054,787.3	\$7,248,102.6
Total Premiums	\$14,360,063.3	\$15,416,342.7	\$13,990,879.1	\$11,777,449.6	\$15,196,613.4

Masonry

	OCCURRENCE YEAR				
	1996	1997	1998	1999	2000
TRANSACTION YEAR					
1996	\$116,135.0				
1997	\$380,864.8	\$171,736.1			
1998	\$140,580.1	\$270,757.5	\$204,955.2		
1999	\$206,583.1	\$60,223.5	\$280,760.8	\$320,256.0	
2000	\$90,763.0	\$126,575.7	\$67,820.2	\$227,154.6	\$280,115.3
Total Cost	\$934,926.1	\$629,292.7	\$553,536.1	\$547,410.6	\$280,115.3
Total Premiums	\$1,191,728.4	\$1,368,772.3	\$1,045,598.8	\$927,579.1	\$1,173,138.5

Mechanical/Electrical/Insulation

	OCCURRENCE YEAR				
	1996	1997	1998	1999	2000
TRANSACTION YEAR					
1996	\$1,778,515.5				
1997	\$1,382,645.9	\$2,206,542.4			
1998	\$817,442.2	\$3,125,120.5	\$3,135,861.5		
1999	\$718,433.4	\$2,176,995.4	\$2,818,662.5	\$3,335,239.4	
2000	\$478,633.9	\$963,759.3	\$2,642,831.7	\$2,799,318.4	\$3,675,736.7
Total Cost	\$5,175,670.9	\$8,472,417.6	\$8,597,355.7	\$6,134,557.8	\$3,675,736.7
Total Premiums	\$14,360,063.3	\$15,416,342.7	\$13,990,879.1	\$11,777,449.6	\$15,196,613.4

Roadbuilders

	OCCURRENCE YEAR				
	1996	1997	1998	1999	2000
TRANSACTION YEAR					
1996	\$4,768,088.5				
1997	\$3,456,256.3	\$5,978,726.9			
1998	\$1,791,952.4	\$4,279,693.0	\$6,414,431.7		
1999	\$1,953,620.4	\$2,557,617.6	\$4,291,339.1	\$4,894,914.3	
2000	\$1,060,120.9	\$1,886,735.0	\$1,744,405.5	\$4,617,869.4	\$7,830,926.8
Total Cost	\$13,030,038.4	\$14,702,772.4	\$12,450,176.2	\$9,512,783.6	\$7,830,926.8
Total Premiums	\$24,810,618.1	\$27,861,612.1	\$24,988,874.8	\$18,853,353.6	\$23,742,095.1

Roofers

	OCCURRENCE YEAR				
	1996	1997	1998	1999	2000
TRANSACTION YEAR					
1996	\$992,569.3				
1997	\$1,007,413.7	\$1,761,783.0			
1998	\$941,580.0	\$1,374,922.9	\$1,618,148.3		
1999	\$786,288.7	\$1,546,688.8	\$1,166,578.6	\$1,509,460.8	
2000	\$636,656.4	\$1,143,092.9	\$529,994.3	\$2,480,297.0	\$1,632,671.4
Total Cost	\$4,364,508.1	\$5,826,487.7	\$3,314,721.3	\$3,989,757.8	\$1,632,671.4
Total Premiums	\$5,151,500.5	\$6,818,404.1	\$7,075,091.1	\$5,866,714.0	\$6,915,503.2

Lime, Cement and Concrete Products Manufacturing.

	OCCURRENCE YEAR				
	1996	1997	1998	1999	2000
TRANSACTION YEAR					
1996	323,505.64				
1997	325,661.01	528,507.41			
1998	162,306.45	588,322.87	906,522.86		
1999	451,198.06	204,371.45	1,045,118.07	1,015,649.13	
2000	136,799.88	317,693.31	521,296.90	1,030,865.71	813,165.24
Total Cost	\$1,399,471.0	\$1,638,895.0	\$2,472,937.8	\$2,046,514.8	\$813,165.2
Total Premiums	\$3,038,132.0	\$3,618,954.9	\$3,615,096.0	\$2,844,943.0	\$3,504,985.9

6. Employers that Received/Renewed a Certificate of Recognition in 2000

ACSA PIR Group of Industries	Certified Employers	Certified and Uncertified (# of Accounts)	Percentage Certified
Drywall & Residential Construction	15	11,154	0.1%
Glaziers	4	518	0.8%
Industrial Construction	40	6,165	0.6%
Masonry	1	212	0.5%
Mechanical/Electrical/Insulation	24	4,077	0.6%
Roadbuilders	82	5,944	1.4%
Roofers	4	958	0.4%
Lime, Cement & Concrete Manufacturing	0	872	0.0%
All ACSA Industries	170	29,900	0.6%

7. Occupational Fatalities: Alberta, 1996 to 2000

An occupational fatality is the death of a worker that results from a work-related incident or exposure. Alberta Human Resources and Employment classifies occupational fatalities into three general event types: motor vehicle incidents; workplace incident; and occupational disease. Each of these three is described in more detail below.

Motor Vehicle Incident

Motor vehicle incidents typically involve highway vehicles operating on public roads in which the fatally injured worker was either a driver or passenger. This category includes fatalities involving aircraft crashes, train crashes, helicopter crashes, etc.

Workplace Incident

Fatal workplace incidents consist of cases in which the worker dies at a work site, or dies as a result of injuries sustained at a work site. It is this type of occupational fatality that Alberta Human Resources and Employment may be responsible for investigating.

Occupational Disease

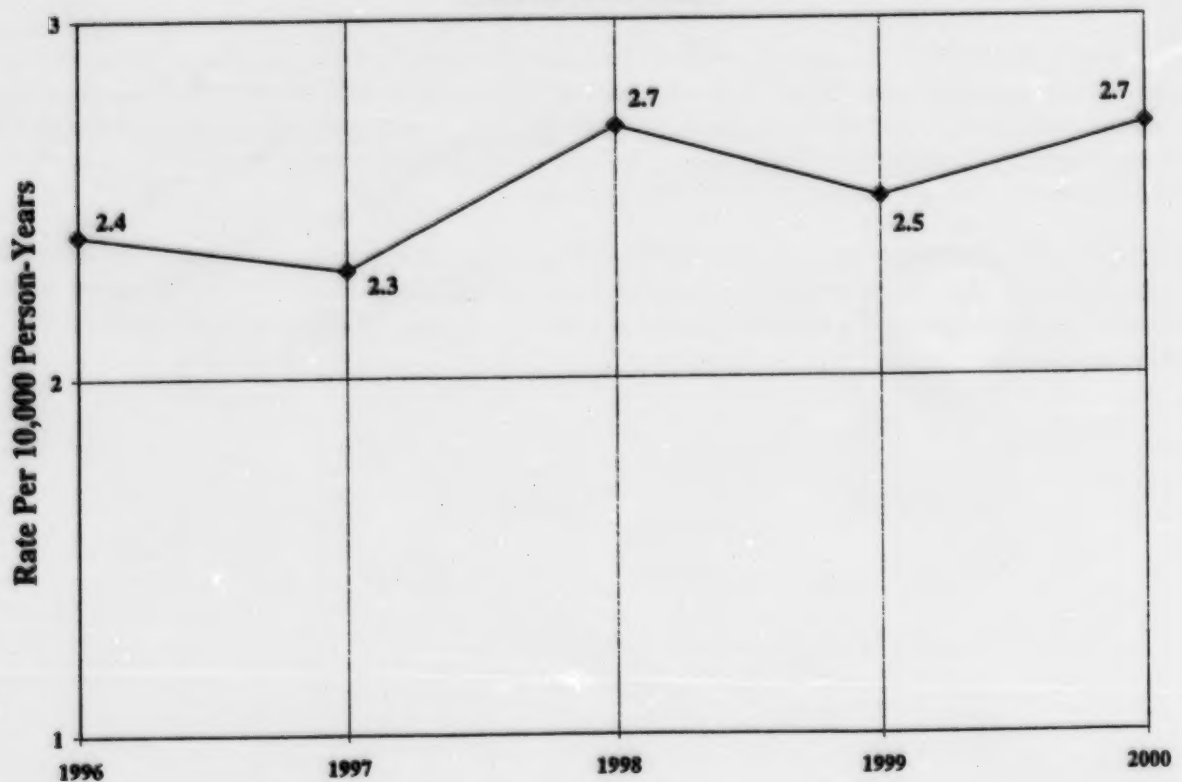
Occupational disease fatalities consist mostly of recognized occupational disease, that is, disease known to be primarily or exclusively work-related (e.g. asbestosis, black lung disease). Occupational diseases are frequently diagnosed many years after the initial or crucial exposure to the toxic substance, and in such cases it is very difficult to determine when the fatal exposure occurred. The occupational disease category, then, should not be interpreted to reflect present work site hazardous conditions or exposures.

Each year the WCB accepts some occupational fatality claims for compensation. The following table shows the number of fatality claims accepted by the type of event for the years 1996 through 2000. Estimated fatality rates were calculated by dividing the number of accepted fatalities in a year by the number of estimated person-years worked in that year.

Descriptions of WCB Accepted Fatalities for ACSA Industries Alberta, 1996-2000

YEAR	Occupational Diseases		Motor Vehicle Incidents		Workplace Incidents		Total	
	N	%	N	%	N	%	N	%
1996	5	23.8	7	33.3	9	42.9	21	100
1997	9	34.6	8	30.8	9	34.6	26	100
1998	16	45.7	5	14.3	14	40.0	35	100
1999	21	63.6	3	9.1	9	27.3	33	100
2000	16	42.1	3	7.9	19	50.0	38	100
Total	67	43.8	26	17.0	60	39.2	153	100

Fatality Rate in All ACSA Industries Alberta: 1996-2000



8. OHS Investigated Occupational Fatalities: Alberta, 1996 to 2000

Drywall/Residential Construction (5)

YEAR: 1997
 OCCUPATION: Arborist
 INDUSTRY: Landscaping, including Maintenance
 EXPERIENCE: 1.5 years

FILE: 0856
 AGE: 33

DESCRIPTION: A self employed contractor was in the process of trimming tree tops and branches for a private residential owner using a truck mounted man-lift. The contractor had located his truck unit in the alleyway to the rear of the residence and had manoeuvred his man-bucket through a space of approximately 150cm (5 feet) between primary and secondary overhead power lines. Upon completing the trimming of one tree he was relocating his bucket to a position to allow him to trim a second. It was during this repositioning that it appears he backed the man/bucket towards a 14KVA-power line and came into contact with it and was electrocuted.

YEAR: 1998
 OCCUPATION: Journeyman Roofing Supervisor
 INDUSTRY: Residential Construction/Renovations
 EXPERIENCE: 29 years

FILE: 0908
 AGE: 62

DESCRIPTION: Two roofers were installing asphalt shingles on the roof of a four-storey building. The workers were wearing their safety belts and lines during the installation of the shingles. They had completed a section of the roof and had used up their open bundles of shingles. The workers decided to take a break before changing over to the new location that need to be shingled.

One of the workers went back up on the roof and decided to install a left over piece of ice dam material on the new location of the roof. He did not use the fall protection equipment available for his use when he went to the eaves of the building. The worker fell approximately 12 metres to the ground below, landing on stacked bundles of roofing shingles, resulting in death.

YEAR: 1999
 OCCUPATION: Landscape Gardener
 INDUSTRY: Landscaping
 EXPERIENCE: 75 Hours

FILE: 936
 AGE: 52

DESCRIPTION: The landscape contractor was hired to remove two trees. The landscape gardener stated that he would need assistance to remove the trees but would start the preliminary work before his co-worker arrived. The top portion of one tree was broken and had fallen onto another tree. The landscape gardener needed to cut some branches in order to remove the broken piece in the adjacent tree. While the landscape gardener was cutting branches with a chainsaw, the anchor point holding his lifeline failed and he fell 7.6 metres to the ground.

Note: There were two fatalities in 2000 that are still under investigation

Glaziers (0)

There were no Workplace Health and Safety investigated occupational fatalities for the period 1996 to 2000.

Industrial Construction (13)

YEAR:	1996	FILE:	0830
OCCUPATION:	Labourer - Machinery Industry	AGE:	54
INDUSTRY:	Machinery/Equipment - Sale, Service and Repair		
EXPERIENCE:	8 months with employer		

DESCRIPTION: The worker was employed as a labourer in a machining shop. In the course of walking across the shop floor, the worker crossed the path of a forklift, which was loading a delivery truck with oilfield valves, and accessories. The operator of the forklift saw the worker and slammed on the brakes, but struck the worker and skidded approximately 2 and half meters, pinning the worker to a steel table which was bolted to the floor. The crushing between the forklift and the metal table caused fatal injuries.

YEAR:	1996	FILE:	0839
OCCUPATION:	Labourer - Building Construction	AGE:	60
INDUSTRY:	Industrial/Commercial Construction		
EXPERIENCE:	Unspecified		

DESCRIPTION: A worker was killed on an industrial construction site when struck by falling joists and metal sheeting. He and another worker were working earlier in the area to remove some standing water with water pumps. When ironworkers began to place bundles of corrugated steel sheeting on metal roof joists above the workers, the two were directed to leave the area. Sometime later, without checking with the ironworkers, the worker felt it was safe to return to the area and did so. Subsequently the joists appeared to slip. Three joists and the bundles of sheeting fell 11 metres and struck the worker inflicting fatal injuries.

YEAR:	1996	FILE:	0850
OCCUPATION:	Labourer	AGE:	44
INDUSTRY:	Commercial/Institutional/Commercial Construction		
EXPERIENCE:	5 years with this employer		

DESCRIPTION: The worker was removing snow from the upper roof deck of a steel building, which was under construction. He was using a 12.5 horsepower gasoline-powered snow sweeper and he had made one pass along the east edge of the roof in a north to south direction.

The worker was approximately one metre from the edge of the roof as he operated the equipment. It is believed that in the course of attempting a right hand turn to make a second pass along the roof, the worker and the snow sweeper fell over the edge of the roof.

YEAR: 1997
OCCUPATION: Ironworker
INDUSTRY: Structural Steel Erection
EXPERIENCE: 22 years

FILE: 0864
AGE: 41

DESCRIPTION: A large warehouse style building was being constructed at a construction site in Southeast Calgary. The crew were erecting roof and crane beams on gridlines on 1 to 4 and beamlines A to D. They had completed erecting all the beams on gridline 1 and had erected the roof beams leaving a tie beam to be put between 2B and 2C. The crane beams were erected and the two ironworkers were standing on the crane beam waiting for the crane to lift the tie beam into position, when column 2C began to fall towards gridline 1. The crane beams interconnected all the columns and all of them fell to the ground along with the two workers. One ironworker was fatally injured and his colleague suffered the loss of a portion of his leg.

YEAR: 1997
OCCUPATION: Millwright
INDUSTRY: Stationary Plant Machinery/Equipment Installation and Service
EXPERIENCE: 20 years

FILE: 0883
AGE: 55

DESCRIPTION: A crew of 10 men were doing renovations in a sawmill. Two workers were preparing metal to build an addition to an operator's booth to house computer equipment for the hew saw. One of the workers left the work area to get some more material and when he returned to the work area, he found the injured worker lying on his back on the basement concrete floor. The injured worker was taken to the hospital and then transferred to Edmonton where he died on January 1, 1998.

YEAR: 1998
OCCUPATION: Swamper
INDUSTRY: Industrial Construction
EXPERIENCE: 31 years

FILE: 0892
AGE: 49

DESCRIPTION: The site was the extension of an existing parkade. The external cement shell for one of the stairwells for the project was erected and a second stairwell was in the process of being erected. During the erection of the first stairwell, two temporary work platforms had been installed inside the structure. Workers began the process of installing the cement stairs and landings within the stairwell. They worked in a progressive manner from the base of the structure up. They would install the cement formworks for 2 sets of stairs and 2 landings. This was followed by the installation of reinforcing bar and the pouring of the cement. Once the cement had cured they stripped out the formworks, installed temporary guardrails and began to assemble the formworks for the next sets of stairs and landings. This continued until the formworks approached the lower of the two temporary work platforms still present in the stairwell. Three workers were given the task of dismantling the platform. The workers accessed the platform from the newly created landing and from the formworks in place for the next set of stairs and landing. There was no provision for fall protection at that level; they were working in an area where the temporary guardrails had not yet been installed. They removed the decking, support beams and most of the cement anchor bolts supporting the platform. Two of the three workers went down the stairs to exit the structure. The third worker was removing the formworks for a set of stairs. The worker slipped and fell through the vertical void between the landings and stairs to the cement at the base of the structure, a total of 9.1m.

YEAR:	1998	FILE:	0896
OCCUPATION:	Labourer	AGE:	39
INDUSTRY:	Industrial Labour Manpower Services		
EXPERIENCE:	Four days, although previously at work site		

DESCRIPTION: Two labourers were assisting the operator of a crane to unload a 5.67 tonne heat exchanger vessel from a hi-boy trailer and to move it to an area where it could be sandblasted and then painted. They attached slings to the vessel. After the crane operator lowered the vessel from the trailer and was positioning the load for the carry, the labourers moved to opposite ends of the vessel. The operator backed up the crane for about 8 metres while the two labourers steadied the vessel by holding on to the ends. As the operator began a 90-degree turn, the crane tipped on its right side. The top of the boom struck a labourer, causing fatal injuries, while he may have been trying to avoid being struck by the vessel.

YEAR:	1998	FILE:	0906
OCCUPATION:	Ironworker	AGE:	36
INDUSTRY:	Erection/Removal of Prefabricated Steel Structures		
EXPERIENCE:	20 years		

OCCUPATION:	Ironworker	AGE:	28
INDUSTRY:	Erection/Removal of Prefabricated Steel Structures		
EXPERIENCE:	4 years		

DESCRIPTION: A pre-engineered industrial building was being erected. Three ironworkers proceeded to move a 10-metre high rolling scaffold from one exterior corner of the structure to another exterior corner. Positioned around the scaffold, they moved the scaffold about 17 metres when it contacted 13000 volt, 3 phase overhead power lines. Two of the workers were electrocuted and a third was seriously injured.

The investigation found that the power lines were not considered in the move. There was no indication that the movement of the scaffold was planned. In addition, construction material stored on the ground near the building partially obstructed a safe route to move the scaffold. There were also no warning signs, barriers, or safe work procedures in place to prevent workers or equipment from coming into contact with the overhead power lines.

YEAR:	1998	FILE:	0911
OCCUPATION:	Journeyman Electrician	AGE:	47
INDUSTRY:	Industrial Plant Maintenance		
EXPERIENCE:	15 years		

DESCRIPTION: A shift foreman and an electrician were repairing some electrical problems in a large sulphur plant in southern Alberta. They had set up a ladder in order to reach a ceiling light fixture. After securing the ladder, the electrician climbed up, lowered the fixture and was using an electrical tester to test for electrical current. Unknown to the electrician, a broken electrical wire inside the light energized the fixture causing it to arc on the ladder. The electrician fell 11.5 metres to the railway track scale below and was fatally injured. The shift foreman who was holding the ladder was not injured.

YEAR: 1999
OCCUPATION: Labourer
INDUSTRY: Welding
EXPERIENCE: 2.5 years

FILE: 0927
AGE: 38

DESCRIPTION: The worker was sandblasting from underneath a metal storage trailer to prepare it for painting. The trailer was used for storing explosives and weighed approximately 1,340 kilograms. The clearance underneath the trailer was 0.7 meters at the rear and 0.6 meters at the front. The trailer was supported on a single axle wheel assembly at the rear and one support leg at the front right corner. The metal storage trailer tipped forward during the sandblasting operation. The worker was pinned underneath the trailer and sustained fatal injuries.

YEAR: 1999
OCCUPATION: Metal-tank Worker
INDUSTRY: Storage Tanks Erect/Dismantle
EXPERIENCE: 25 years

FILE: 0946
AGE: 44

DESCRIPTION: The worker was installing a portable mechanical auguring system inside a silo to remove silage (cattle feed). During this process, the worker stuck his right arm into the silo opening to determine how much silage was left. The worker's right arm was caught by the cutting teeth of the operating auger and was severed near the shoulder. The worker ran into the farmyard to get assistance. About 64 metres away from the silo, he collapsed and died of his injuries.

Note: There was one fatality in 2000 that is still under investigation

Masonry (0)

There were no Workplace Health and Safety investigated occupational fatalities for the period 1996 to 2000.

Mechanical/Electrical/Insulation (3)

YEAR: 1997
OCCUPATION: Plumber
INDUSTRY: Mechanical Contracting (Plumbing, Steam, Gas Fitting)
EXPERIENCE: 10 years

FILE: 0861
AGE: 41

DESCRIPTION: A 2.28 metre deep trench was excavated for the purpose of installing a water and sewer pipeline. The plumber entered the trench and walked about 15 metres to where the water pipeline was being uncoiled and installed. The backhoe was in operation about 3 metres from the uncoiled water pipeline. The plumber was turning back when a large slab of earth dislodged from the trench wall and struck him, burying him from the chest down. The backhoe operator and the plumber's neighbour uncovered the plumber who was semi-conscious. The plumber died of internal injuries at Foothills Hospital in Calgary.

YEAR: 1998
 OCCUPATION: Electrician
 INDUSTRY: Electric Wiring
 EXPERIENCE: N/A

FILE: 0898
 AGE: 23

DESCRIPTION: An electrician was drilling holes through the wall of a small building, working alone from the inside, while standing on a stepladder. The worker was using a drill with a hole-saw bit, powered by a generator set at 110 volts. All other workers were outside the shack. The worker had completed the second of two holes, and another worker witnessed the bit coming through and then being withdrawn. When the building was entered a short time later, the electrician was found unconscious on the floor, and efforts to revive him failed.

YEAR: 1998
 OCCUPATION: Sprinkler Filter
 INDUSTRY: Installation and Servicing of Fire Sprinkler System
 EXPERIENCE: 20 years

FILE: 0905
 AGE: 29

DESCRIPTION: The journeyman and his apprentice had been raising two parallel sections of an existing sprinkler line by turning the threaded pipe hanger rod. Both workers were stationed on a platform secured to an overhead crane. Each of the parallel sections of sprinkler line that the workers had been raising was supported by two clevis pipe hangers and had the flange bolts removed at each end. Both workers secured their fall protection lanyard to the section of the sprinkler line they were raising. As the journeyman was turning the threaded pipe hanger rod, he inadvertently unthreaded the nut at the base of the rod. This resulted in his section of the sprinkler line dropping onto the platform and sliding off the crane.

The journeyman, whose lanyard was attached to the line, fell with the sprinkler line approximately 13 metres to the concrete floor, resulting in death.

Road builders (27)

YEAR: 1996
 OCCUPATION: Cat Operator
 INDUSTRY: Seismic Geophysical/Mineral Exploration
 EXPERIENCE: 30 years

FILE: 0831
 AGE: 57

DESCRIPTION: The worker was employed as a clean-up cat operator on a seismic operation. His duties consisted of clearing debris from a seismic line behind a lead cat and two hand fallers. At one point in the operation he caught up to the hand fallers. For reasons that are not clear, he got off his cat and walked in the direction of the fallers. In doing so he walked into the path of a tree being felled, and was struck, receiving fatal injuries.

YEAR: 1996
 OCCUPATION: Flagger - Construction Industry
 INDUSTRY: Paving and Surfacing
 EXPERIENCE: 3 Seasons (1.5 years)

FILE: 0835
 AGE: 35

DESCRIPTION: The worker was employed as a flag person on a paving crew. She was waving public traffic through at the end of a work zone, while a water truck on the same crew was backing up, approaching the worker. The flag person was looking in the opposite direction of the approaching water truck, and was backed over by the rear wheels of the truck. The driver thinking he had backed onto a bump moved forward, again running over the worker with the rear wheels. The worker received fatal injuries as a result of being run over by the water truck.

YEAR: 1996
 OCCUPATION: Paver - Industrial Construction
 INDUSTRY: Paving and Surfacing
 EXPERIENCE: Unspecified

FILE: 0840
 AGE: 21

DESCRIPTION: A worker on a paving crew was stretching string along the centre of the road as a guide for the paving machine. At the same time a dump truck loaded with asphalt was backing up to empty into the paving machine. In the process of backing up, the dump truck ran over the worker. The backup alarm on the truck was working properly at the time. There was no one on foot acting as a lookout for the driver of the truck to assist in backing up.

YEAR: 1996
 OCCUPATION: Labourer - Excavation & Grading
 INDUSTRY: Mobile Equipment Operations/Road Construction/Land Clearing
 EXPERIENCE: 3 weeks with current employer

FILE: 0841
 AGE: 45

DESCRIPTION: A worker employed by Robertson Construction was working the night shift on a crushing operation near Fort McMurray. His responsibilities included clearing debris build-up and general maintenance around the crusher. Just prior to the scheduled maintenance shutdown he was caught between a roller and belt while crushing limestone, sustaining fatal injuries. Contractor: Suncor.

YEAR: 1996
 OCCUPATION: Farm Machinery Operator
 INDUSTRY: Mobile Equipment Operations/Road Construction/Land Clearing
 EXPERIENCE: 5 years

FILE: 0842
 AGE: 16

DESCRIPTION: The worker was pulling an earth compactor with a farm tractor on a partially completed road on the Buffalo Lake Metis settlement. He was pulling the packer from East to West over a section of fill about two metres deep and the slope of the bank at that point was about 1:2 (rise over run). The first 0.5 metre of the bank was nearly vertical. The tractor slipped off the edge of the road and flipped over, pinning the operator underneath and fatally injuring him.

YEAR:	1996	FILE:	0844
OCCUPATION:	Project Co-ordinator	AGE:	31
INDUSTRY:	Mobile Equipment Operations / Road Construction		
EXPERIENCE:	Unspecified		

DESCRIPTION: A "heavy hauler" (very large mine truck) and a pick-up truck were travelling in opposite direction on a haul road in the mine. The heavy hauler cut to the inside (wrong side) of a corner while making a left hand turn at a "T" intersection. The pick-up truck was either travelling in the opposite direction around the same corner or stopped at the corner at the time of the incident. The left front and rear wheels of the heavy hauler travelled over the full length of the pick-up, crushing it and killing the driver.

YEAR:	1997	FILE:	0865
OCCUPATION:	Roller Operator	AGE:	37
INDUSTRY:	Paving and Surfacing		
EXPERIENCE:	13 months over a 3-year period		

DESCRIPTION: A paving crew was in the process of paving a section of highway situated on a hill in North-western Alberta. The worker was operating a self-propelled pneumatic roller, in a set pattern, throughout the day. The worker arrived at the end of the rolling pattern, at the top end of new pavement on the hill. The worker's mobile equipment stalled and started to roll backwards. The worker was unable to gain control as the equipment rolled down hill. The packer skidded into the ditch causing it to roll over. The worker was not wearing a seat belt and was thrown over 30 m off the machine causing fatal injuries.

YEAR:	1997	FILE:	0867
OCCUPATION:	Crusher Operator/Labourer	AGE:	27/20
INDUSTRY:	Mobile Equipment Operations/Road Construction/Land Clearing		
EXPERIENCE:	5 ½ years, 1½ years		

DESCRIPTION: A tractor trailer hauling approximately 34,436 kg of pit run gravel pulled across the top of an in-ground container and prepared to dump the load into this container to supply a gravel crushing operation. Upon raising his box, the truck driver noticed his load started tipping towards the driver's side. The end dump semi-trailer with a full load of gravel fell onto the crusher operator's work booth located adjacent to the dumping station. A crusher operator and a yard labourer were fatally injured by the weight of the gravel and semi-trailer.

YEAR:	1997	FILE:	0870
OCCUPATION:	Welder (semi-retired)	AGE:	55
INDUSTRY:	Mobile Equipment Operations,/Road Construction/Land Clearing		
EXPERIENCE:	N/A		

DESCRIPTION: The workers were in the process of installing a municipal water and sewer service in a 2.8 metre deep straight cut trench to a residence in Northwest Alberta rural municipality. The worker placed the earth removed from the excavation on the immediate south wall of the trench. Access and egress to the trench was supplied by a single ladder. The south wall of the trench caved in, pinning a worker under approximately 0.8 metres of dirt and fatally injuring him. The contributing factors were the lack of proper cutback; no shoring and the location of the spoil pile on the trench bank.

YEAR:	1997	FILE:	0871
OCCUPATION:	Truck & Gravel Pit Owner	AGE:	62
INDUSTRY:	Mobile equipment Operations/Road Construction/Land Clearing/Demolition		
EXPERIENCE:	40 years		

DESCRIPTION: The operator was servicing a conveyor on a screener at a gravel pit. The operator had opened the guard doors and was applying belt dressing as a temporary measure to the conveyor belt as it had been slipping. The unit was operating and his clothing and arm got caught by a drive sprocket, fatally injuring him.

YEAR:	1997	FILE:	0875
OCCUPATION:	Truck Foreman	AGE:	37
INDUSTRY:	Mobile Equipment Operations/Road Construction/ Land Clearing/Demolition		
EXPERIENCE:	38 years		

DESCRIPTION: The intersection of Highway 5 and Secondary Highway 508 was undergoing widening to accommodate turning lanes. The driver of a semi-trailer end dump truck with a load of gravel was instructed by the truck foreman to dump his load in the Southwest corner of the intersection. As the truck driver backed into position to dump his load, the truck foreman ran to the truck to give additional instructions. The truck driver repositioned his truck closer to the West Side of the highway. The truck foreman remained close to the truck driver's side of the cat as the truck driver hoisted the box to dump the load of gravel. The dump box made contact with one phase of a three phase 25 kV line.

The truck foreman, who was standing by the driver's side of the truck, was fatally injured. The truck driver was seriously injured when he returned to the truck after exiting through the driver's door. He apparently touched the truck by putting his hand on the door.

YEAR:	1998	FILE:	0886
OCCUPATION:	Welder	AGE:	32
INDUSTRY:	Mobile Equipment Operations		
EXPERIENCE:	8.5 years		

DESCRIPTION: A company was contracted to dismantle a bitumen pilot plant. To move a roll crusher from its concrete foundation, the contractor moved a 50-ton truck crane to the site. At the time of the lift, the crane was equipped with 37 metres of boom and was operating at a radius of 8 metres. The crusher was to be lifted off the elevated concrete foundation and set to the side, to facilitate dismantling the conveyor.

Workers attached slings to the roll crusher. The crane hook was attached and the lift started. The crusher was raised slightly from its foundation and held, while the outriggers were checked to ensure that they were solidly planted on the ground. After receiving a signal from the designated signaller, the crane operator continued with the lift and slowly swung the load to the right. The boom buckled and collapsed to the crane operator's right. The signalman ran in the same direction, and was hit and pinned by the collapsed boom. He died later in hospital.

YEAR: 1998
OCCUPATION: Equipment Operator
INDUSTRY: Pipeline Construction
EXPERIENCE: 2 years

FILE: 0893
AGE: 59

DESCRIPTION: A heavy equipment operator was operating a Timberjack used to haul sandblasting equipment for the purpose of sandblasting 18" pipe on a pipeline. The operator stopped the Timberjack on the pipeline right-of-way alongside the pipe, exited, and was walking away from the equipment when apparently the operator noticed the equipment moving. The operator tried to jump back into the Timberjack and fell between the left front chain-covered wheel and the dozer blade lifting mechanism of the machine. The operator received crushing injuries to his head and torso resulting in a fatality.

YEAR: 1998
OCCUPATION: Truck Driver
INDUSTRY: Mobile Equipment Operations
EXPERIENCE: N/A

FILE: 0894
AGE: 55

DESCRIPTION: The driver was working alone in moving a large crawler type excavator to the construction site for a new compressor station. He was operating a tractor-trailer unit on a temporary access road without a gravel base. The road had a short section with a sharp hill having an average grade of 14%. Vehicles trying to ascend the hill could not attain any speed at the bottom due to a 45-degree curve. A new road with fewer grades had just been finished.

While attempting to traverse the steep grade, without chains or the full use of the driving wheels, the truck spun out at the crest of the hill. In trying to back down the hill, the tractor trailer unit jack-knifed across the road. The driver offloaded the tracked excavator and then went to get a nearby D8K crawler tractor in an attempt to pull the truck up the hill. The first attempt to pull the truck failed as the brakes on the trailer unit had not been disengaged and the chain from the crawler tractor to the truck tractor broke. The truck slid further downhill. When the driver was subsequently in the process of attaching a second chain, the crawler tractor backed over him. The brakes had not been set on the crawler tractor.

YEAR: 1998
OCCUPATION: Truck Driver
INDUSTRY: Mobile Equipment Operations/Road Construction/
 Land Clearing
EXPERIENCE: 10 years

FILE: 0895
AGE: 44

DESCRIPTION: The truck driver had backed his tandem dump truck and trailer parallel to the working face of a gravel stockpile to load gravel. The stockpile of gravel was estimated to be 9 m. high and the average size of gravel was about 50 mm. A front-end loader was parked at the base of the stockpile. The truck driver exited his vehicle and proceeded to the rear of the truck to secure the spreader chains. As he secured one of the spreader chains, a large portion of gravel sloughed down from the stockpile. The truck driver attempted to flee the immediate area by taking a path between the rear portion of the loader and trailer. The force of the descending gravel pushed the dump trailer sideways pinning the truck driver against the side of a parked front-end loader, fatally injuring him.

YEAR: 1998 FILE: 0910
 OCCUPATION: Tow Tractor Operator/Truck Driver AGE: 43
 INDUSTRY: Mobile Equipment Operations/Road Construction/Land Clearing
 EXPERIENCE: 29 years

DESCRIPTION: A construction crew was installing fibre optic cable in a ditch, 1.5 metres below ground, using a cable plow (a machine, which threads cable underground). During the installation the crew approached an irrigation canal and roadway in their path. The crew had to stop plowing to disconnect the fibre optic cable from their plow. The procedure was to feed the cable through a previously installed conduit placed under the canal and roadway. A trench had to be dug alongside the cable plow to release the fibre optic cable. When the cable was released and uncoiled, they relocated the plow to the other side of the canal to receive the fibre optic cable.

A previously installed conduit was sticking out of the ground alongside the trench. Therefore, the trench that was dug to free the cable from the plow had to be offset and extended to expose the conduit. Once the conduit was exposed, the hi-hoe operator entered the trench and cut the conduit off at the 1.5 metre depth. While pulling the fibre optic cable through the conduit, it got caught.

The tow tractor operator entered the trench to realign the cable when the trench wall collapsed fatally injuring him.

YEAR: 1999 FILE: 0921
 OCCUPATION: Caterpillar Operator AGE: 30
 INDUSTRY: Mobile Equipment Operations
 EXPERIENCE: 10 years +

DESCRIPTION: The caterpillar operator was excavating a dugout on a location owned by private individuals for the purpose of farming. It was equipped with a dozer blade and a single hydraulically controlled ripper tooth. The operator was using a ripper tooth to break up frozen ground. The ripper contacted a 410-mm. pipeline, which transports sweet natural gas. The pipeline was punctured causing a release of natural gas. The gas ignited, causing an explosion and fire. The operator died as a result of burns he received.

YEAR: 1999 FILE: 0924
 OCCUPATION: Loader Operator AGE: 40
 INDUSTRY: Mobile Equipment Operation
 EXPERIENCE: 1 year with employer and several years previous experience

DESCRIPTION: The loader operator noticed a jam on the conveyor system carrying sludge into the burner at a pulpmill waste system. He called an electrician in the pulpmill informing him that the heat shield at the end of the conveyor was jammed open, causing the belt to burn. He then contacted a millwright to come and make the necessary repairs. When the millwright arrived, he found that the loader operator had climbed the conveyor system in an attempt to fix the jam and became pinned by the lowered heat shield.

The investigation determined that the loader operator was not required nor requested to unplug the waste system. Had he simply contacted the appropriate mill personnel, and not attempted to fix the problem himself, the incident would have been avoided. Additional guarding to the burner feed conveyor heat shield frame was added to prevent entry to the pinch point area and a review of workplace hazards was conducted at the worksite.

YEAR: 1999 FILE: 0937
 OCCUPATION: Septic System Installer AGE: 50
 INDUSTRY: Residential General Contracting/Construction/Renovations
 EXPERIENCE: N/A

DESCRIPTION: The installer broke ground with a backhoe to prepare a trench for a septic tank. While digging the trench many cave-ins occurred. The walls collapsed enough to eventually change the trench into an excavation (the width eventually exceeded the depth). He was working alone when he entered the excavation to conduct work on the outlet side of the tank. While working in the excavation, at least one wall collapsed, burying the installer.

The investigation found that the soil in the south side of the excavation consisted of numerous sand layers and that water had accumulated at the base of the excavation increasing the likelihood of cave-ins. The installer had also entered a trench with walls that were not cut back to at least 45 degrees from the vertical, and no shoring or bracing structures had been put in place.

YEAR: 1999 FILE: 0939
 OCCUPATION: Truck Driver AGE: 58
 INDUSTRY: Mobile Equipment Operations, Road Construction - NEC
 EXPERIENCE: 11 years

DESCRIPTION: A truck driver was hauling concrete slabs from a private residence to a dry landfill site. At the dumping area within the landfill site, the truck driver raised his dump box to unload the concrete slabs. During unloading, one witness noticed a large concrete slab was "hung up" at the rear tailgate of the truck. The truck driver, after raising the load in order to dump, lowered the truck box and proceeded to the rear of his truck. The large concrete slab that was "hung up" on the tailgate suddenly dislodged. The large concrete slab along with others from inside the truck box fell on top of the truck driver resulting in fatal injuries.

YEAR: 2000 FILE: 0949
 OCCUPATION: Cat Operator AGE: 33
 INDUSTRY: Mobile Equipment Operations, Road Construction
 EXPERIENCE: 10 years

DESCRIPTION: Two workers were connecting a brush rake, which weighed between 2377 and 2449 kg, to a D7H Caterpillar bulldozer. The brush rake was "face down" on the side of the road. In order to stand it up, a chain was connected from an eye on the upper middle back of the rake and around the C-frame on the bulldozer. The bulldozer operator raised the C-frame to its upper limits and reversed the cat to stand the brush rake up in order to pull the side arms out. When the blade was in a near upright position the helper signalled the operator to stop. The worker then walked in between the rake and the bulldozer, and out of view of the operator. The bulldozer operator saw the bottom of the brush rake "kick out" and heard the other worker call for help. He got out of the cab and saw the worker pinned under the left arm of the brush rake. The worker was freed from the rake and first aid was administered before he was transported to a hospital. The worker later died as a result of his injuries.

YEAR: 2000
 OCCUPATION: Labourer
 INDUSTRY: Mobile Equipment Operation
 EXPERIENCE: N/A

FILE: 970
 AGE: 37

DESCRIPTION: A labourer was working on stabilizing a building, which was gutted by fire. Bricks and mortar debris were covering the gas meter guard involved in this incident. The gas meter was protected by two guard posts and a cross brace; however, during clean up one of the guard posts was ripped out leaving one guard post and the cross brace in place. The cross brace was left only partially attached. The labourer requested that the skid steer loader operator remove the remaining gas meter guard. Using the loader bucket, the skid steer loader operator was unable to push the meter guard and re-positioned the loader. When the skid steer loader operator was pushing again, an upward thrust of the loader bucket broke the cross brace loose and it flew in the air striking the labourer in the head.

Note: There were five fatalities in 2000 that are still under investigation

Roofers (6)

YEAR: 1997
 OCCUPATION: Carpenter
 INDUSTRY: Roofing
 EXPERIENCE: Unspecified

FILE: 0866
 AGE: 24

DESCRIPTION: As part of the house construction, the fascia and windows on the north side of the house had been installed. The contractor decided that the scaffold should be moved from the north to the south side of the house, using the driveway as an unobstructed path. The three workers and the site owner proceeded to move the 4-tier scaffold. As the scaffolding began to move, the owner was distracted by a neighbour's call and released her grip on the scaffold. The upper poles of the scaffold made contact with the neutral ground wire and then the high voltage wire that ran parallel to the driveway. One worker was fatally injured due to electrocution.

YEAR: 1997
 OCCUPATION: N/A
 INDUSTRY: Roofing
 EXPERIENCE: N/A

FILE: 0880
 AGE: 54

DESCRIPTION: A worker was killed in Edmonton when he fell 8 metres from the roof of a warehouse. He had been using a power broom to sweep gravel away in order to make repairs, when he back up and tripped over the lip of the roof.

YEAR:	1998	FILE:	0903
OCCUPATION:	Roofer	AGE:	30
INDUSTRY:	Siding, Soffit, and Eaves Trough Fabrication/Installation		
EXPERIENCE:	11 years		

DESCRIPTION: Two workers were installing eaves troughs on a row of three storey condominiums. The first worker descended a 12.0 metre aluminium extension ladder to retract the ladder and move it to a new location along the building. However, his co-worker, who was larger in stature, volunteered to move the ladder in the extended position to save time and effort. In order to move the ladder to the desired location, it was necessary for the worker to contend with a temporary ramp. As the worker was walking, the ladder contacted a live overhead power line resulting in fatal injuries.

Note: There were three fatalities in 2000 that are still under investigation

Lime Cement/Concrete Manufacturing (1)

Note: There was one fatality in 1999 that is still under investigation

APPENDIX A: ACSA 2000 Industry Codes

ACSA PIR Groups of Industries

Industries

1. Drywall/Residential Construction

02100 - Landscaping Including Maintenance
 40401 - Construction, Residential
 42111 - Painting & Decorating
 42113 - Tile & Terrazzo, Sale/Install
 42115 - Paving Stone, Sale/Install
 42125 - Floor Covering, Sale/Install
 42133 - Cabinets/Counters, Asbestos/Install
 42135 - Drywall, Plaster, Lath, Stucco, Etc.
 42136 - Sprinklers, Underground, Asbestos/Install
 42141 - Acoustic Materials, Sale/Install

2. Glaziers

30302 - Overhead Doors, Install/Repair
 42121 - Glass/Door/Window, Mfg./Asbestos/Instal

3. Industrial Construction

40400 - Construction, Industrial
 42105 - Steel/Metal Structures- Erect
 42106 - Steel, Structural- Erect
 42109 - Mach/Equip. Heavy, Install/Service
 42120 - Sand Blasting
 42127 - Fence Sales, Rent, Install
 42129 - Industrial Plant Maintenance
 42156 - Tanks/Storage - Erect/Dismantle
 42159 - Caisson Ops. & Foundation Boring
 42161 - Concrete, Precast - Erect
 51504 - Cathodic Protection Services
 62302 - Mach/Equip, NEC-Sale/Service/Repair
 86911 - Manpower Services- Industrial Labour
 89401 - Welding
 89605 - Service Station Equip., Supply/Service
 89928 - Scaffold/Crane, Rent/Erect

4. Masonry

42102 - Brick & Masonry - Construction

5. Mechanical/Electrical/Insulation

31508 - Overhead Cranes, Service Only
 42110 - Elevators/Escalators, Install/Repair
 42117 - Heating System(HVAC)- Fab/Install
 42122 - Plumbing, Gas Fitting
 42124 - Electric Wiring
 42144 - Sprinklers, Fire - Install/Service
 42184 - Insulation, Mech. - Install/Service
 89600 - Refrigeration, Sale/Service

APPENDIX A: ACSA 2000 Industry Codes (continued)

ACSA PIR Groups of Industries

Industries

6. Roadbuilders

02200 - Right-of-Way Maintenance
34800 - Transit Mix Operations
40602 - Paving & Surfacing
40604 - Mobile Equip Ops & Road Construction
40901 - Power/Phone Line-Construction/Remove
40905 - Construction, Pipeline
42103 - Drilling, Horizontal/Angular
42155 - Moving of Buildings

7. Roofers

42118 - Roofing
42139 - Industrial Coating Services
42151 - Siding/Eavestrough - Mfg./Installation

8. Lime, Cement & Concrete Products Mfg.

42104 - Construction, Concrete

APPENDIX B: Terms, Definitions, and Formulas

Lost-Time Claim A lost-time claim (LTC) is a claim for an occupational injury or disease, which disables the worker beyond the day of injury. Included are claims for which wages compensation are paid, permanent disability claims, fatalities, and cases in which the injured worker is assigned light duties or other modified work.

Person-Years Person-year estimates are calculated from wage and payroll data provided by account holders to the WCB. Alberta Human Resources and Employment uses these data to estimate an average industry wage, and uses the average industry wage and employer payroll data to estimate person-years for each employer and each industry. One person-year is equivalent to one full-time worker working for one year, and can be assumed to equal 2,000 hours worked.

LTC Rate The lost-time claim (LTC) rate is calculated by dividing the number of lost-time claims by the person-year estimate, and multiplying the result by 100. The LTC rate represents the probability or risk of disabling injury or disease to a worker during a period of one-year work. Comparisons of LTC rates between industries, or between years, can be used to indicate increases, decreases, or differences in this risk.

$$\text{LTC Rate} = \frac{\text{Number of LTCs} \times 100}{\text{Estimated Person-years}}$$

Duration (Days Lost) The duration of disability is the number of days following the injury or disease for which the worker was disabled, and unable to perform normal work duties. This information is obtained for this report from data on compensation days paid on each claim from WCB. Alberta Human Resources and Employment obtains these data on March 31 of the year following the claim year, and does not update the information, even though many injured workers continue to be disabled beyond this date. As a result, the duration information reported here underestimates the true impact of lost-time injury and disease.

Duration Rate The duration rate is calculated by dividing the number of workdays lost (disability days) by the person-year estimate, and multiplying by 100. The result is expressed as days lost per 100 person-years worked, and indicates, in part, the economic impact of occupational injury and disease. Duration rates are not recommended as reliable indicators of full economic cost. In addition, readers are warned that duration rates are highly unstable when based on only a few lost-time claims; it is recommended that the duration rate not be calculated based upon fewer than 30 lost-time claims.

$$\text{Duration Rate} = \frac{\text{Disability Days} \times 100}{\text{Estimated Person-Years}}$$

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